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THE DENTAL DIGEST

APRIL, 1939

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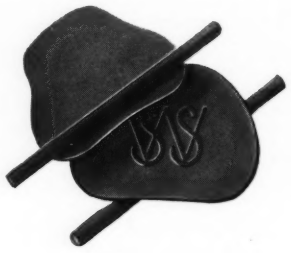

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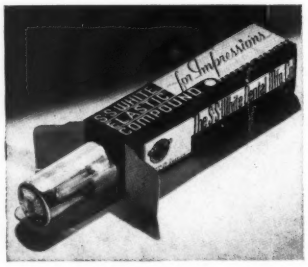

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About Our CONTRIBUTORS

WINFIELD S. FISHER, D.D.S. (Northwestern University Dental School, 1919) is a frequent contributor to the dental literature and is known to readers of this magazine for his articles on THE COST OF DENTAL CARE: ITS SIGNIFICANCE IN PRESENT TRENDS IN DENTISTRY (August, 1935); A THEORY OF DENTAL CARIES: ITS CLINICAL APPLICATION (January, 1936); PAIN CONTROL IN DENTISTRY (April 1938). CLINICAL DIAGNOSIS AND TREATMENT OF DENTAL CARIES: DIAGNOSIS, in this issue, represents a comprehensive approach to the problem of dental caries. Its considerations are inclusive within the present scope of our knowledge. Next month, the second half of this article, which is devoted to TREATMENT, will be found to be pragmatic and sensible—the result of thoroughgoing experience and careful application of principles. Doctor Fisher rides no hobbies. As a careful workman and a detailed observer, he sees no single factor as more important than all the contributing factors in dealing with the problem of dental caries.

•

ALBERT L. BORISH, D.D.S. was graduated from Temple University Dental School in 1931. Doctor Borish writes, "My activity in the field of dental writing has been confined, to the present, to editing the other man's work: as editor of the ***Alpha Omegan***, a national dental fraternal journal, and as associate editor of the ***Bulletin of the Philadelphia County Dental Society***. This GOTHIC ARCH TRACING SIMPLIFIED, is my first technical dental project."

•

DAVID DEITCH, junior co-author with Doctor Borish, is a dental technician.

•

WILLIAM M. LATHROP, B.S., D.D.S. (Kansas City-Western Dental College,1930) is a general practitioner with a special interest in natural color intra-oral clinical photography.

•

EDWARD L. BALL received his D.D.S. in 1919 from the Ohio College of Dental Surgery. Doctor Ball specializes in periodontia. He is on the staff of Christ Hospital and Good Samaritan Hospital Schools of Nursing, of the Cincinnati General Hospital, Christ Hospital, and Good Samaritan Hospital. In July, 1934, Doctor Ball published with us his article on ACUTE AND CHRONIC VINCENT'S INFECTION. His present article, a case report, represents the successful treatment of periodontoclasia in a case in which both surgery and electrocoagulation were used.

•

MORRIS EIGEN, D.D.S. (Georgetown University School of Dentistry, 1934) likes operative dentistry and through THE DIGEST offers his fourth practical suggestion: FULL CROWN DIRECT PATTERN. Last June Doctor Eigen described CASTING WITHOUT RING.

THE DENTAL DIGEST

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708 Church Street, Evanston, Illinois

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Clinical Diagnosis and Treatment of Dental Caries
Part I: Diagnosis

WINFIELD S. FISHER, D.D.S., Elmhurst, Illinois

CLINICAL DIAGNOSIS AND treatment of dental caries must be based on principles definitely established by research and clinical experience. The practical application of these principles, however, will be influenced considerably by other factors, such as (1) the attitude of the patient; (2) his susceptibility; (3) expense of the necessary treatment; (4) conditions of living; (5) the type of treatment possible, and (6) the age of the patient.

Attitude of the Patient

An attempt should be made to educate all patients to the importance and value of constructive treatment, but definite preventive or corrective measures should be reserved only for those whose attitude justifies the effort and whose cooperation is assured. It is useless to attempt any treatment other than the usual operative procedures involved in repair for the patient who is concerned only about his immediate comfort and relief from pain.

Susceptibility of the Patient

The susceptibility of the patient will influence the comprehensiveness of treatment. Treatment for the patient of slight susceptibility who develops a carious lesion only occasionally will not be so extensive as for one who develops several cavities over a period of a year or so, nor will the treatment for the latter type of patient be so exacting and inclusive as that required for one who is constantly in need of reparative dentistry, because of frequent caries.

Expense of Treatment

In the mildly susceptible patient, expense of treatment will often determine the procedure to be followed. Often in such cases the fee necessary for proper consultation and other phases of treatment will be greater than that required for quarterly or semi-annual prophylaxes, examinations, and advice. The latter procedure, although of less value with regard to correction and prevention of that patient's condition, is still a procedure whereby his mouth may be kept in good condition. This will be satisfactory in most mild cases of caries, for the tendency is for patients to spend as little on their mouths as possible. Sometimes, however, a patient of mild susceptibility is as anxious to follow a constructive course of treatment as is one less fortunate. As a rule, therefore, a definite plan of correction and prevention is confined to the care of the patient more or less constantly exposed to the development of caries and to the patient presenting evidence of rampant caries.

Conditions of Living

Unfortunately social and living conditions are such that absolute control of some of the factors involved in definite prevention of dental caries is impossible. These factors will be discussed in detail later. The use of the term "prevention" is relative and can only mean such a reduction in the development of caries that its appearance over a period of years becomes an occasional rather than a regular occurrence.

Type of Treatment

At the present level of our knowledge, specific treatment which will apply alike to all cases and which once instituted will definitely effect a cure is impossible. Treatment of caries, therefore, is a problem of individual diagnosis and procedure for each patient concerned.

Age of the Patient and Its Effect on Treatment

The age of the patient is a significant factor to be considered in treatment. In the child and adolescent the influence of development and growth on tooth structure, tooth arrangement, and metabolic processes requires a more comprehensive approach in some phases of treatment than is required in adult and aged patients. Although metabolic influences must be recognized at all ages, certain regressive and functional changes with their effect on oral environmental conditions become more pronounced later in life, so that corrective and preventive measures become more local in character. Consequently there is a certain characteristic cycle in the clinical picture of caries as it progresses from childhood to senility (Fig. 1), as follows:

In the young child with deciduous dentition caries appears first in occlusal pits and fissures of the lower molars and in the disto-lingual grooves of the upper molars. With the eruption of the first permanent molars to the middle third of the crowns of the teeth, caries develops likewise in the occlusal fissures of these lower permanent molars and in the central pits and disto-lingual grooves of the uppers. Then, as the bicuspids begin to travel occlusally from their relatively deep-seated origin between the roots of the deciduous molars there is a gradual separation of these teeth at the contact points. Caries then appears on the proximal surfaces of the deciduous molars and, with further eruption of the first permanent molars, on the mesial surfaces of them as well.

The next phase is the development of occlusal caries in the bicuspids as they erupt occluso-gingivally; later, occlusal cavities in the lower second molars and disto-lingual cavities in the upper second molars as they progress in eruption.

With the onset of third molar progression toward eruption and its disorganizing effects on the previously erupted dentition, there is often an increased susceptibility to caries at this age, as a result of this disorganization of tooth relationship and occlusion throughout the mouth.

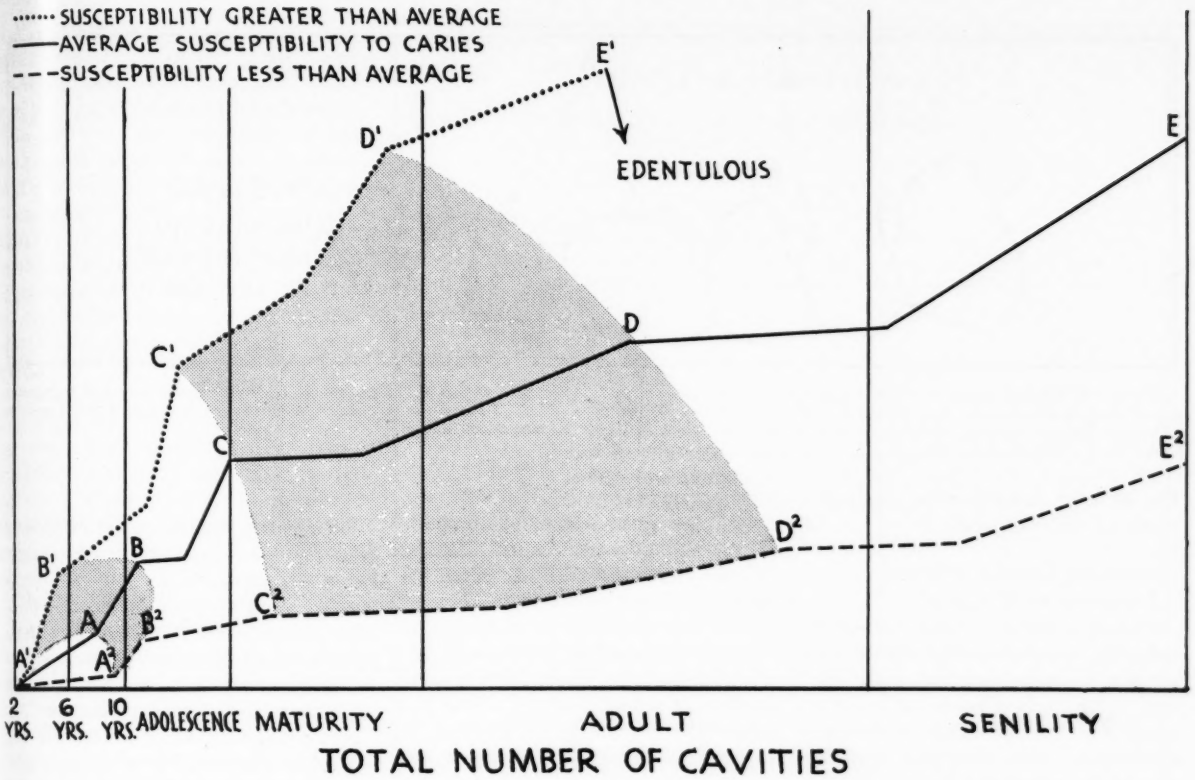


Fig. 1—A, Caries begins to appear at about 2 years of age. In the case of average susceptibility, pit and fissure cavities appear in deciduous dentition from 3 to 5 years of age. In teeth deeply pitted and grooved, with poor dietary and hygienic habits, the number of teeth involved will be more (A^1). and caries will appear earlier; in well developed teeth with small pits and fine shallow grooves, caries will be less frequent (A^2) and will appear later.

B, The graph A—B indicates the increase in number of cavities found owing to opening contacts of deciduous molars by upward movement of bicuspids, resulting in proximal caries; pit and fissure caries in permanent molars. Deep grooves and pits; poor dietary balance and habits; improper hygiene; multiple eruptions; malocclusion—all these increase the number of carious lesions (B^1). Uniform eruptions; good tooth form and structure, especially of ovoid and round types; good jaw development and maintenance of full complement of teeth together with normal dietary regimen—all these reduce incidence (B^2) at this period.

C, Increased incidence of caries due to disruptive influence of progressive eruption of third molars on tooth relationships; full complement of teeth. C^1 graphs susceptibility intensified by poor tooth structure; dietary aberrations; malocclusion; shifting due to lost teeth. C^2 indicates less pronounced incidence when combination of environmental factors is favorable to high degree of self-cleansing.

D, This rise in caries-incidence typifies development of proximal caries and gingival third caries caused by regressive changes from functional wear and gum recession. D^1 shows increase when environmental factors, such as neglected calcular deposits, food mat, and general shifting of teeth, accentuate these changes by exposing more surfaces to collections. D^2 shows the more gradual and less pronounced addition of lesions at this period in cases in which such changes are slower and less complicated.

E, The rise in caries-incidence during senility when regressive changes, abrasive results of function and disorganization because of incomplete or neglected replacements reach their peak. In the case of those with a past history of relatively constant caries due to continued and active environmental change, this period usually becomes an edentulous climax E^1; the more stabilized arch showing a moderate amount of regression and functional disintegration E^2. Subcontact and cemental caries are characteristics of this period.

When, instead of a more or less orderly procedure, there are multiple eruptions of teeth, there is such a complication of factors that a devastating effect in caries incidence results. It is, therefore, not rapid growth that explains this increased susceptibility but the rapid change in environmental conditions coincidental with it. These changes are still more insidious in effect if their rate and extent are in the meantime increased by the unreplaced loss of teeth.

After adolescence and the complete eruption of the full complement of teeth to the normal gingival margins, functional changes due to natural forces of mastication, regressive changes, such as gum recession with its altered tissue relationships to the teeth, and changes in contacts, begin to manifest themselves. Proximal caries becomes, then, a characteristic type of lesion during adult life.

As the patient progresses through maturity to senility, the physiologic recession of the gum tissue exposes more vulnerable surfaces of the teeth, so that eventually proximal caries during middle and later life shows the focal point of entry at or below the cemento-enamel junction rather than just beneath the contact point, and the focal point of entry of buccal and lingual caries, below the cemento-enamel junctions of those surfaces (Fig. 2). Aggravation of this physiologic recession by calcular deposits or collection of sordes increases this tendency and fosters premature development of this part of the caries cycle. All this has a definite place in

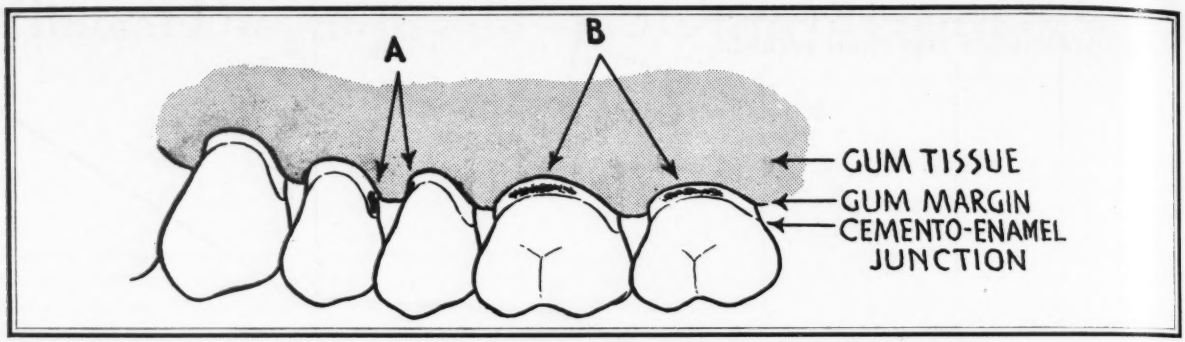


Fig. 2—A, Carious nidus at cemento-enamel junction as result of septal tissue recession. B, Carious nidus on buccal surfaces as result of septal tissue recession. This gingival transition of the opening lesion is a characteristic of increasing age with cemental caries common in late middle life or in the aged. Food mat and regressive effects of neglected calcular deposits cause premature development of this transition.

the general consideration of treatment, as will be shown.

General Considerations Involved in Diagnosis

The one incontrovertible fact established by research is that dental caries is a chemico-bacterial phenomenon. With such a bacterial involvement the three cardinal points considered in any bacterial invasion should be examined here: (1) the organisms present and their virulence; (2) the resistance of the host; and (3) the opening lesion. Such a procedure clarifies the concept of caries and renders possible its practical application in diagnosis and treatment.

Organisms Concerned and Their Virulence

Research repeatedly emphasizes that in dental caries there is found more than one organism, and all are alike in possessing acidogenic characteristics and in ability to withstand a *p*H of 5 or less, but differing morphologically in that they range from *B. acidophilus* to certain streptococci, yeasts, and molds.[1] These organisms, particularly *B. acidophilus*, may be found almost alone or in symbiosis. In other cases the predominating organism may be streptococci; in still others, yeasts and occasionally, molds.

A complementary relationship has also been demonstrated whereby the presence of certain bacteria may augment the acidogenic powers, not only of themselves but also of the organisms associated with them.

Although large numbers of bacteria usually indicate active and extensive caries, the same degree of susceptibility is found in a less quantitative culture of organisms. This would indicate that certain conditions may increase the virulence of their action without necessarily increasing their number. Cultures made for the same patient at different hours of the day may vary so widely in number of organisms found that accurate determination of them has only a relative significance. This complexity of bacterial observations and their variability and inconsistency both as to types and numbers makes a bacterial examination of minor practical value as an aid in diagnosis, except when used as a check-up of treatment or when observations may suggest the necessity of comprehensive treatment. When used as a check-up of treatment, bacterial examination offers some practical value in so far as it indicates a variation for that particular patient in relative numbers as compared with a culture made at the time reparative dentistry was instituted previous to corrective treatment. The best clinical demonstration of susceptibility is the condition of the mouth.

Resistance of the Host

All the natural protective agencies embodied in a state of normal health for a person are important in increasing resistance to caries. Certain characteristics of the saliva, however, and particular metabolic processes and diet are of special importance with respect to caries and therefore should be considered in diagnosis and treatment.

Saliva

The saliva has a selective power which determines to some extent what organisms can exist in a particular mouth.[2] A caries-immune person—one who has never had a carious lesion—is so, apparently, because acidogenic organisms will not grow in the mouth. Cultures attempted on tomato-agar plates of *p*H 5.0 are invariably negative for such patients. Hill's results[3] seem to point to the presence of some chemical in the saliva as the potent factor, for the saliva will withstand a relatively high temperature as well as refrigeration, the latter for as long as thirty days.

Whereas this selective power of the saliva tends to regulate the types of organisms existing in a particular mouth, environmental factors are an important determinant of numbers. It has also been found that general debility or a deviation from a normal systemic condition may favor an increase in the number of organisms present. An example of this is seen when a marked increase of *B. acidophilus* has been found after an acute illness, as compared with the number found previous to the illness. How much influence changed environmental conditions due to illness may have on the increased number is unknown.

Until the constituent of the saliva exercising this selective or inhibitive power over acidogenic organisms is definitely isolated, salivary cultures

[1]Fisher, W. S.: A Theory of Dental Caries: Its Clinical Application, DENTAL DIGEST, 42:6 (January) 1936.

[2]Enright, J. J.; Friesell, H. E., and Trescher, M. O.: Studies of the Cause and Nature of Dental Disease, J. D. Research, 12:759 (October) 1932.

[3]Hill, T. J.: A Salivary Factor which Influences the Growth of L. Acidophilus and Is an Expression of Susceptibility or Resistance to Dental Caries, J. A. D. A. 26:239 (February) 1939.

are of diagnostic value only as they designate the relative number and variety of acidogenic organisms found in a particular mouth with their probable effect on the complexity of the treatment required. Large numbers and several types of acidogenic organisms usually indicate marked susceptibility. It must be borne in mind, however, that the virulence of those organisms present may also accentuate the clinical picture without an unusual number of organisms being found.

Certain physical properties of saliva are of diagnostic value. These will be discussed under "Environmental Factors." At the present time chemical tests of saliva are of no practical value either for diagnostic or for treatment purposes.

Metabolic Processes

Metabolic processes are important in diagnosis as they affect the oral secretions, growth and development, tooth structure, tissue conditions, and the efficiency of the mouth, both as a chewing mechanism and in its self-cleansing properties. Hereditary tendencies, general health as it relates to arrested, retarded or incomplete development, faulty structure; and individual characteristics of assimilation and other digestive processes—all these should be noted.

Diet

One of the most effective measures in establishing or maintaining normal metabolic processes is regulation of the diet. A well-balanced diet is a first requisite to assurance of normal secretions, normal development, and normal structure, as well as to a high resistance to any abnormal condition. In the case of caries, however, not enough attention is paid to two phases of diet which are highly important in treatment. These two phases are (1) the relation of diet to the development of collections in and about the teeth, and (2) diet as a source of acidogenic bacterial activity. Failure to include these in the concept of treatment explains the frequent failure despite an apparently well-fortified diet. The diet should be examined not only with regard to balance but also with regard to particle size and consistency of foods as well as type of food—whether cereal grain, vegetable starch, or fibrous foods. Under present living conditions, the examination of the diet with regard to its potentialities as a medium for acidogenic bacterial activity relates particularly to foods offering fermentative possibilities. It must also be kept in mind that cereal grains are more conducive to acidogenic phenomena than are vegetable starches (peas, beans).

OUTLINE OF DIAGNOSIS

I. Determination of patient's susceptibility:
  A. by clinical picture and history;
  B. by culture (more valuable as check-up during treatment).

II. Consideration of general health of patient:
  A. growth and development (general and oral);
  B. metabolic processes (assimilation and digestive or allergic aberrations should be noted and a physician consulted if necessary).

III. Consideration of diet:
  A. as to balance;
  B. in relation to development of collections;
  C. as a source of acidogenic activity.

IV. Age of patient:
  A. as it affects general systemic regimen;
  B. as it affects amount and rate of environmental changes;
  C. as it affects types of those changes:
    (1) developmental,
    (2) functional, and
    (3) regressive.

V. Consideration of oral hygiene:
  A. brushing habits; chewing habits;
  B. frequency of dental examination and prophylaxes.

VI. Local environmental factors:
  A. tooth form; tooth structure; tooth relationship;
  B. amount and consistency of saliva;
  C. tissue relationship:
    (1) normal;
    (2) hypertrophied and inflamed;
    (3) recession.
  D. Resistance to change:
    (1) occlusion;
    (2) articulation;
    (3) cusp length and intercusping;
    (4) teeth lost and unreplaced.

Opening Lesion: Environmental Factors

Unlike other diseases, the syndrome of dental caries is of relatively slow development. The concentration of the by-products of acidogenic bacterial activity must be strong enough and last for a long enough time to attack the particular tooth surface involved, so that a carious lesion develops. Such a concentration requires either faults in tooth structure or protection of the nidus in the case of sound tooth structure:

The protection necessary for concentration of acid in sufficient strength and amount for dissolution of tooth structure is some combination of bacterial, structural, functional, relational, tissue, food, salivary, or chemical nature.

Tooth form; tooth relation; tooth structure (pits and fissures); tissue relationship; chewing habits; articulation; occlusion; type, particle size, texture and consistency of food; state and quality of saliva; chemical action of food and the action of oral secretions on the food—all these determine the location of beginning caries in the mouth.[4]

(End of First Installment: Part II: Treatment, Concluded Next Month)

State Bank Building.

[4]Fisher, W. S.: Determination of Individual Caries-Susceptible Areas with Classification of Carious Patients, J. A. D. A. 21:1790 (October) 1934.

Gothic Arch Tracing Simplified

ALBERT L. BORISH, D.D.S. and DAVID DEITCH, Philadelphia

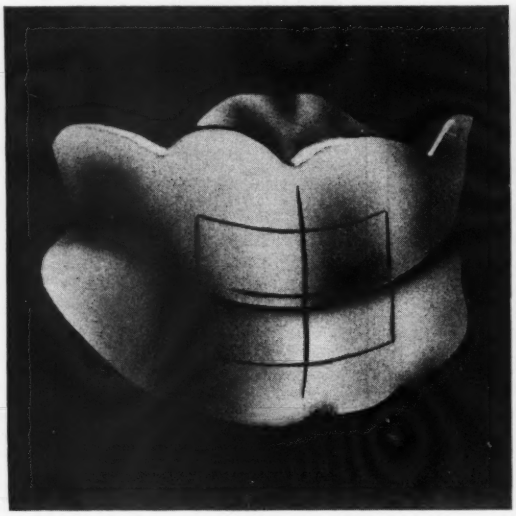


Fig. 1

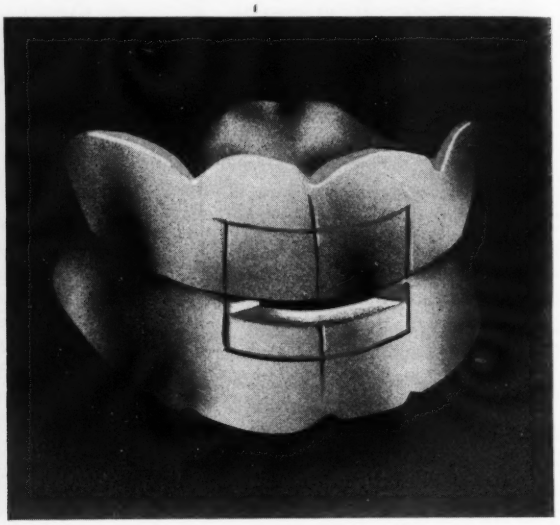


Fig. 2

Fig. 3

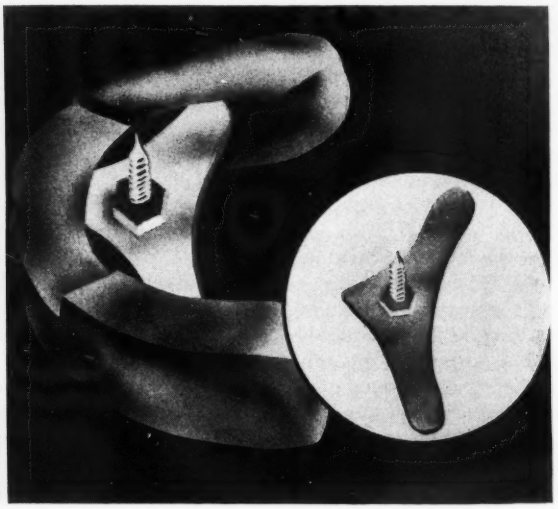


Fig. 4

Fig. 1—The gothic arch is the most accurate method of determining centric relation. Centric relation is: "that positional relation of the mandible to the maxillae where the condyles are in their most retruded position in the glenoid fossae, from which all lateral movement begins . . . the two main factors in avoiding clicking and skidding dentures and in establishing occlusion are the proper seating of the condyle heads in the glenoid fossae and securing and maintaining the correct vertical position."

To minimize the possibility of movement of the base when recording markings, it is advisable to use well-fitting hard bases in conjunction with the compound bite blocks. Vertical position is gained and the blocks are marked for the center line, high and low lip lines, and mouth corners.

Fig. 2—About 3 mm. of compound are trimmed from the anterior region of the lower bite block. This will leave a space between the upper and lower anterior regions, so that contact is made only on posterior margins of bite rims.

Fig. 3—The tracing table (copper, 24 gauge) is inserted into the lingual of the upper block, just below the edge of the bite rim. To secure the metal, heat the edges before placing into compound and follow by placing a thin mix of plaster between tracing table and base plate.

Fig. 4—The screw path-marker is placed in the lingual of the lower block, the edges are first heated to secure its position.

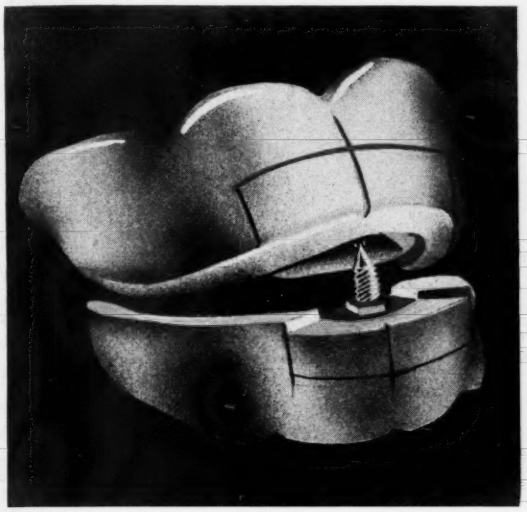


Fig. 5

Fig. 6

Fig. 5—A thin film of black carding wax is placed on the tracing arch. Blocks are placed in the mouth, the screw being regulated so as to open the bite blocks about 1 mm.

With set screw free to move on the tracing table, the patient is instructed to slide the mandible slowly forward, backward, and from side to side.

These tracings will reveal an apex or centric point or that point "where the condyles are in their most retruded position in the glenoid fossae."

Fig. 6—The blocks are removed from the mouth and with a number 1 round bur, a hole is made in the tracing table exactly where the markings converge at the centric point.

The bites are placed into the mouth and the patient is instructed to repeat the original movements. The operator will note a cessation of movement when the screw of the path-marker slides into the hole. Also, the posterior surfaces of the bite rims will come together. The patient is now "in centric." To prevent movement of the blocks in the transfer to articulator, seal the rims by searing, plaster, or staples.

The tracing table and screw path-marker are simple to construct, and the design of the path-marker is such that there is little or no interference with the tongue.

544 *Lansdowne Avenue.*

Color Photography for Visual Education

WILLIAM M. LATHROP, D.D.S., Norton, Kansas

TIMELY PRESENTATION of actual cases in conjunction with well ordered lecture courses have been considered a highly desirable manner in which to present pathologic conditions for group study and discussion. Usually, however, it is found to be exceedingly difficult to locate the desired subjects and arrange for their presentation at the proper times. Photography in natural color offers a medium by which perhaps a more effective solution to the problem is possible. A library of lantern slides, comprising the material in a given course of study, offers to lecturers and students an accurate medium for this purpose. Suitable material for such libraries abounds in most clinics, from which the selected cases can be obtained and photographed.

Photographic lantern slides are preferable to motion pictures in studies of this kind in which minute detail is to be observed. As a means of instruction in technique, or a study of impaired function of a part, however, the motion picture is better.

Photography in natural color has been within the realm of practical application for many years, and various systems and processes are now in use. Not until the advent of Kodachrome film in 1935, however, was an accurate and convenient system generally available. Primarily introduced to the 16 mm. motion picture field, Kodachrome was later adapted for miniature cameras, and recently has been offered for use in larger hand cameras and stand cameras which utilize cut film.

Convenience in handling and cost per unit slide are important considerations. Miniature camera film transparencies, bound in 2 by 2 inch cover glasses, represent a convenient arrangement for exposing the film and handling the finished product. Projectors of various types are marketed at reasonable cost. At least one model will handle dental roentgenograms, mounted or unmounted, in addition to the slides. Kodachrome strip "film slides" are unsatisfactory because the emulsion is readily scratched and soon becomes dirty and unsuitable for projection. The cash outlay for 35 mm. miniature camera equipment is moderate, and the film cost per slide is at a minimum.

Kodachrome film is manufactured in two types: for daylight and for artificial illumination. Experiment has proved the "type A" for artificial illumination in combination with photoflash illumination to be more practical and more readily adaptable to a standardized technique than any other combination.

Kodachrome film, in common with all makes of color film, has little latitude. This means that all exposures, in order to give correct color rendition, must be correct within narrow limits; therefore, it has been found advisable to determine the correct exposure (by experiment) for each ratio of reduction to be used. In determining the correct exposure, it is desirable to select a small lens aperture (f 32) as a standard, regulating the intensity of the illumination by the distance of the lamp from the subject. Once the correct lamp distance is established for a given ratio of reduction and a given lens aperture, all future exposures are made identically.

Color photography of this type for visual education requires a close "working distance" from camera lens to the subject. Lighting should be "flat," that is, evenly balanced throughout; a single source of light from the front is desirable, and the light should be as near the lens axis as possible. It is also desirable to encase the photoflash lamp in a reflector that provides a transparent protective shield, in order to prevent injury to the patient in case the lamp should burst and shatter when flashed. A suitable reflector for this purpose may be made by removing the safelight glass from a Brownie safelight and substituting a piece of clear glass.

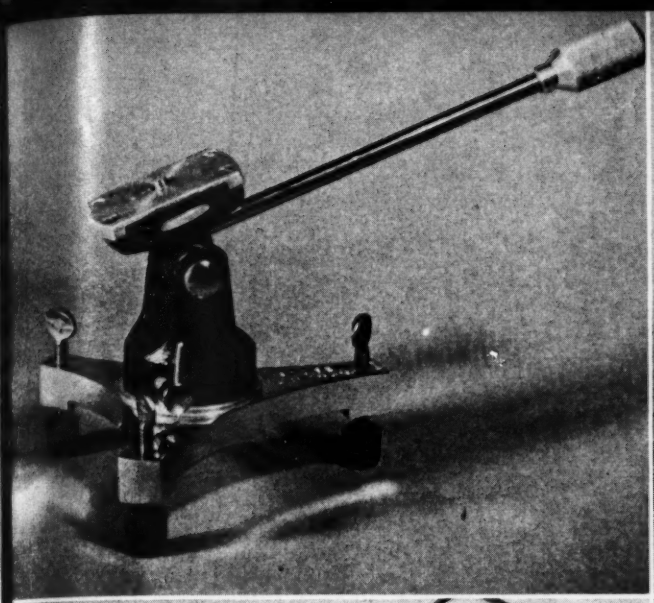
In practice the subject is suitably arranged; the camera focused and adjusted; then in rapid order the shutter is opened (on "bulb" or "time" exposure); the lamp is flashed and the shutter closed.

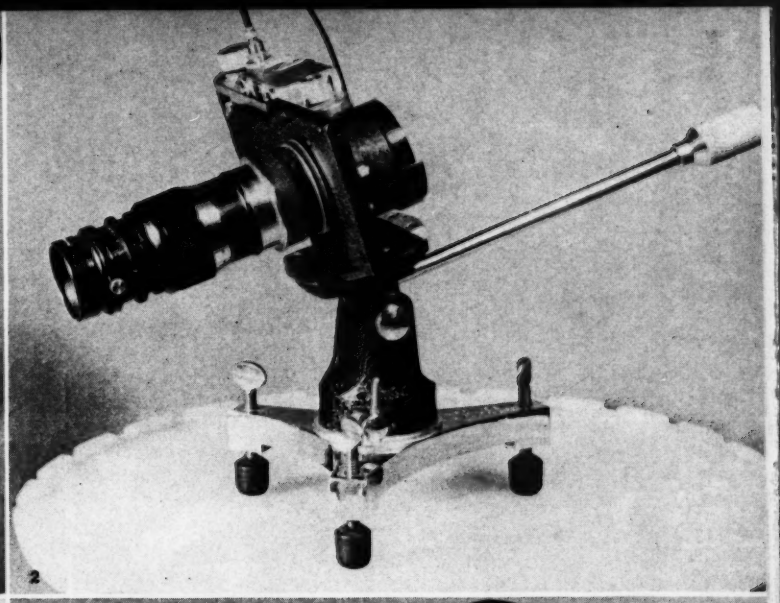
Advantages of Photoflash Illumination

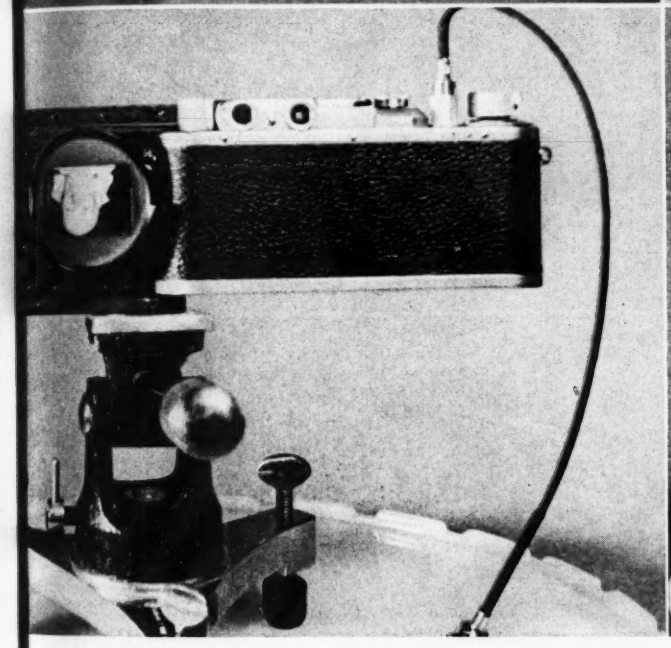
1. The total amount of light is constant for each exposure.
2. Color of the light is constant.
3. Duration of flash is about one fiftieth of a second. This is regarded as instantaneous and precludes any possibility of movement on the part of the patient.
4. Patients are not subjected to extreme heat of photoflood lamps for long exposures.
5. Intense light permits the use of small lens apertures which increase the over-all sharpness of the image.
6. Photoflood illumination would require the elimination of all other sources of light at the moment of exposure; whereas the relative intensity of photoflash is so much greater that this technique permits the work to be done in daylight.
7. Regular (daylight type) Kodachrome is unsatisfactory, because the light varies within wide limits as to intensity and color; longer exposures would be required and results are less certain.

Mounting the Camera

A convenient arrangement for mounting the camera is one that utilizes the bracket table. I have attached leveling feet to an old microscope base, using rubber corks to prevent slipping, and scratching the bracket table (Fig. 1). To this is attached a movie pan-and-tilt tripod head, upon which the camera is mounted. The patient may be raised or lowered by the chair lever. Any horizontal movement of the camera may be accomplished by moving the bracket table, and adjustment of the tripod head will permit any camera angle. Various types of clamps are available by which the camera may be attached directly to the bracket table. All bracket table adjustments should be inspected and tightened to prevent vibration, and a







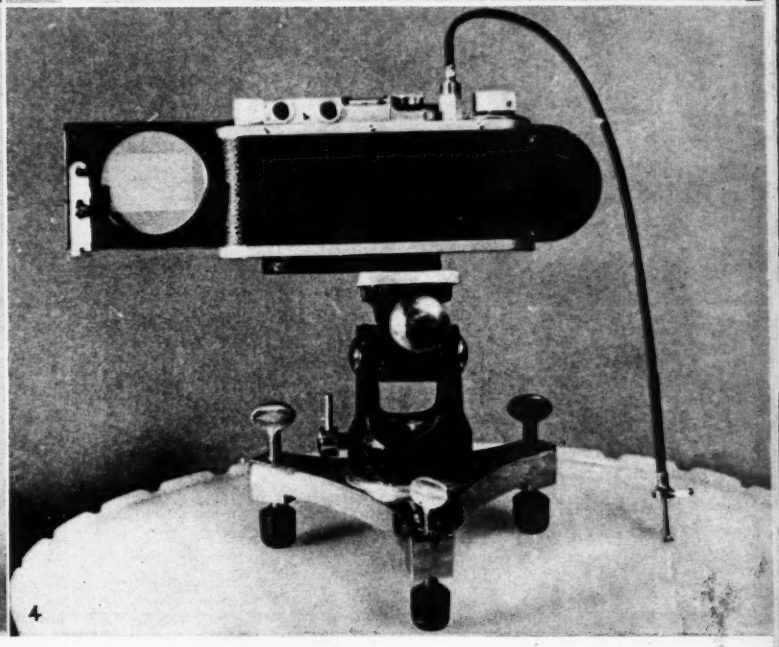


Fig. 1—Camera holding device to be used on bracket table.

Fig. 2—Leica camera, with Fuldy focusing attachment, and Elmar 90 mm. lens, in position for focusing.

Fig. 3—Rear view: camera in focusing position; inverted image seen on ground glass focusing screen.

Fig. 4—Rear view: camera moved into "taking" position, for making the exposure.

cable-release should be used to operate the shutter.

Accessories

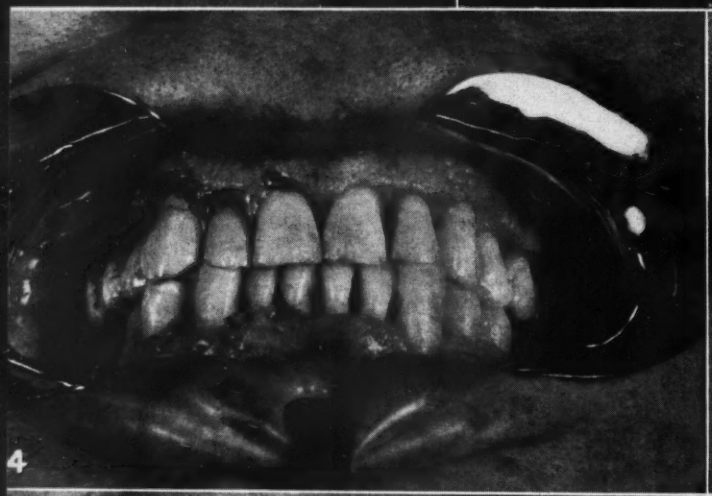
Inexpensive battery cases may be purchased to be used as a source of electrical energy with which to operate the flash lamps.

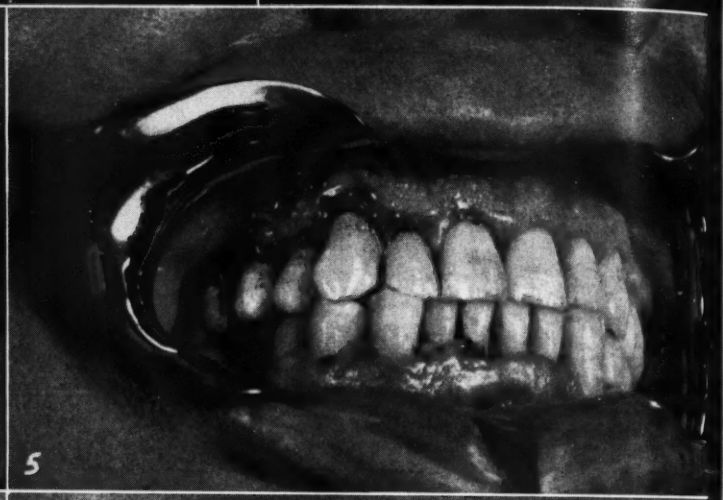
Precision type cameras, such as the Leica and Contax, to which a ground glass focusing screen and interchangeable lenses may be attached, are best suited to the work. For the Leica (Fig. 2) the 90 mm. lens, the

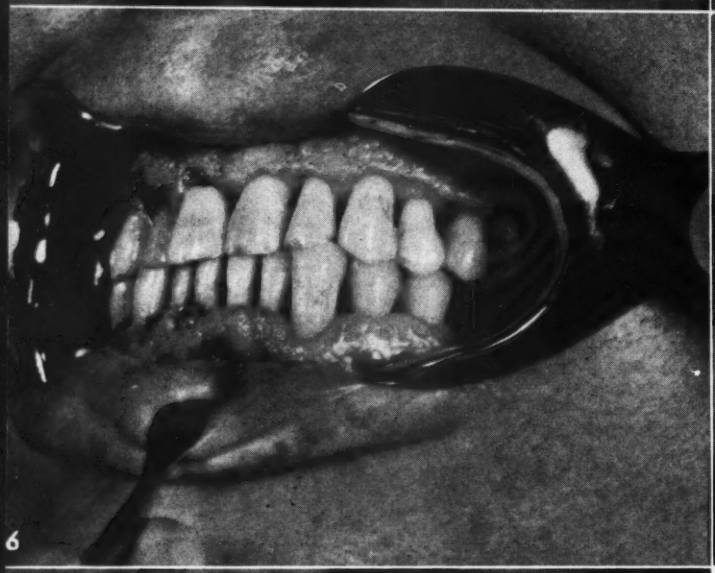
(*Text continued on page* 145)

Exposure

Lens	Photoflash Number (In Reflector)	Ratio	Distance of Lens to Subject	Distance of Lamp to Subject	Lens Aperture
90 mm.	7 or 10	4.5:1	18¾ inches	23 inches	f 32
		2.5:1	12¼ inches	16¼ inches	f 32
		1.5:1	9 inches	13¼ inches	f 32







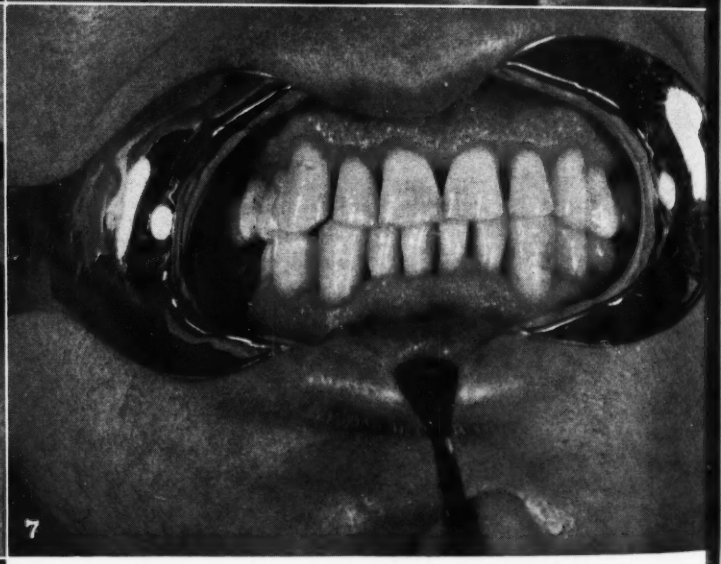


Fig. 1—Appearance at first examination.

Fig. 2—Four days after gingivectomy of the upper left side and electrocoagulation of the upper right side.

Fig. 3—Left side: seven days after the lower jaw was treated by surgery.
Right side: seven days after the lower jaw was treated by electrocoagulation. The surgical pack covered both areas.

Fig. 4—Anterior view two weeks after treatment was begun.

Fig. 5—Upper right coagulated side two weeks after first treatment. The coagulated tissue has sloughed away revealing heavy black deposits. The black deposits which were clearly visible were extremely difficult to remove—even with heavy scalers. Healing took place readily on the coagulated side as soon as the deposits were removed.

Fig. 6—Left side, two weeks after gingivectomy.

Fig. 7—Six weeks after treatment was instituted.

Fig. 8—One year and four months after treatment. No evidence of suppuration or irritation.

Surgery vs. Electrocoagulation in Suppurative Periodontoclasia: Report of Case

EDWARD L. BALL, D.D.S., Cincinnati

IN THE CASE to be presented here, it was decided to treat half the mouth by surgery and half, by electrocoagulation. The case seemed to be an ideal one in which to test both types of treatment for suppurative periodontoclasia. Comparative results would be offered with regard to postoperative healing, postoperative pain and general appearance of the tissues.

Objectives in Treatment

In treating a case of suppurative periodontoclasia the following must be accomplished: (1) removal of all infected soft tissue; (2) removal of pockets; (3) removal of all deposits on the teeth; (4) general preparation of the mouth to accept careful daily treatment which will insure the future health of the mouth.

Methods of Treatment

The left side of the mouth was treated by a combination of the Ward-Kaiser-Kirkland technique for gingivectomy.

The right side of the mouth was treated by electrocoagulation, for which two types of machines were used. The upper right was treated without the use of a surgical dressing; whereas, a surgical dressing was used on the lower right side of the mouth immediately following electrocoagulation. There was less pain on the lower right side where the surgical dressing was used.

Report of Case

The patient, a man, aged 41, weighing 340 pounds, complained chiefly of aching legs and varicose veins. His physician made a careful examination which revealed the presence of suppuration around the gum line; no other foci of infection were found.

Roentgenographic Examination—A complete roentgenographic examination showed alveolar resorption, but no apical disease. There was no evidence of caries.

Clinical Examination—Clinical examination showed a marked amount of suppuration around all the upper and lower teeth, labially, lingually, and interproximally.

Treatment—The left side of the mouth was treated surgically, the right side by electrocoagulation, as already described under "Methods of Treatment."

Postoperative Results—The pain in the patient's legs subsided after the first treatment, and he was able to resume work.

A carefully planned diet and treatment by the patient's physician, over a period of a year and four months, have resulted in a remarkable reduction in weight—120 pounds. During that period the patient has not lost a day's work, and he tells us that he never felt better in his life.

814 *Doctors Building.*

COLOR PHOTOGRAPHY FOR VISUAL EDUCATION

(*Continued from page* 143)

Fuldy focusing attachment, a lens hood, and the 12 mm. and 22 mm. lens extension tubes complete the list of accessories.

Users of 6.5 by 9 cm. and 9 by 12 cm. plate and film pack cameras may obtain a miniature film adapter and thus obtain the benefits of miniature film.

A daylight projection screen or visualizer cabinet makes it possible to present photographs of models to patients which is more effective than showing the models themselves. Before and after studies presented in full color offer definite records as evidence, as an aid in outlining the possibilities from an esthetic standpoint, and in creating a demand for services of this kind.

Reduction Ratios

The 4.5:1, 2.5:1, and 1.5:1 reductions answer most requirements for views of the lingual, labial, and occlusal aspects of the teeth, the tongue and other parts of the mouth and the face.

Exposures

Exposure will vary slightly with various lenses and reflectors; however, with the use of similar equipment, the exposures and distances given in the accompanying table, will probably be found correct within ½ stop, and compensation may be made for any variation in equipment.

For photographing casts, photoflood illumination is satisfactory. Exposure should be determined by means of a Photronic exposure meter reading, taken from a medium grey target. Allowance should be made for the increase in exposure necessary to compensate for the lens extension.

Full Crown Patterns: Direct Method

MORRIS EIGEN, D.D.S., West Orange, New Jersey

A TECHNIQUE IS presented for the construction of full cast crowns which combines the accuracy of the direct pattern with the manipulative convenience of the indirect.

In the usual indirect-direct method, a compound or trulastic impression is taken in an annealed and festooned copper band. On a model of the preparation secured from such an impression, a wax pattern is made, and readapted in the mouth for gingival, contact, and contour correction.

The object of the technique is to secure a wax colloid impression of the preparation and adjacent areas, to pour up in a satisfactory refractory, and to contour outside the mouth on the pattern-model before investing and casting.[1]

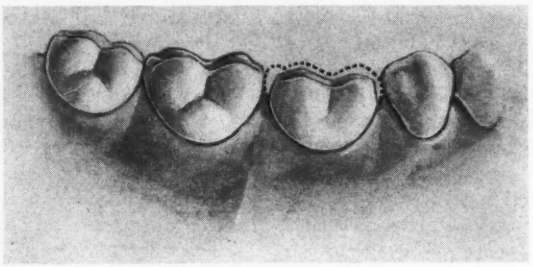


Fig. 1—Tooth prepared by eliminating undercuts and reducing occlusal surface to a depth of 1 mm.

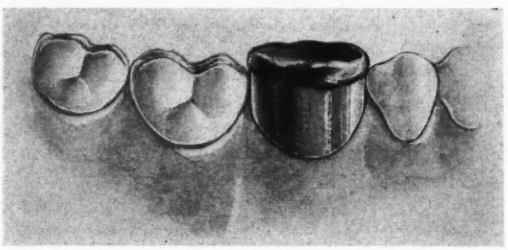


Fig. 2—Hand inlay wax-imprint of preparation taken in festooned and lubricated band.

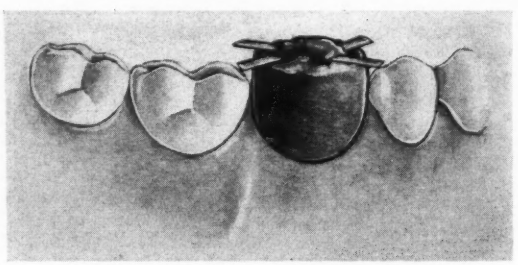


Fig. 3—Extruding flat metal staples buried in occlusal wax excess in order to insure accurate recovery of imprint in colloid impression.

Advantages

1. In the technique presented here, the necessity for gingival, contact, and contour correction in the confines of a moist and strained mouth is eliminated.
2. The accuracy of fit is increased by eliminating the use of intermediate materials.
3. The number of steps is reduced.
4. Operative time at the chair is shortened.
5. A smooth and anatomic wax pattern is easily obtainable.

Technique

1. Inasmuch as the tooth on which a full crown is indicated is somewhat bell-shaped, sufficient tooth structure is removed with discs and stones until all undercuts are eliminated and a parallel or slightly tapering preparation is obtained. The general contour of the occlusal surface is reduced to a depth of about 1 mm. by means of selected stones (Fig. 1). The preparation is then cleaned of débris and kept dry by means of cotton rolls and a saliva ejector.

2. A wax-imprint of the preparation is taken in either a selected and prepared copper band or the type of Ivory matrix band used in two or three surface amalgam restorations. In either case there should be sufficient room at the gingival for impression wax; that is, about 1 mm.

3. If a copper band is selected, it is preferably used unannealed. (If used annealed, the band may be distorted by the occlusal condensation of wax. When this happens, a distorted wax-imprint will probably be recovered.) The unannealed band is placed on the preparation and the gingival outline marked. The band is removed and festooned outside the mouth. The margins are smoothed and beveled inward to prevent lacerating the gum tissue. The inside of the band is well

[1] Eigen, Morris: Direct Pattern Technique on a Flawless Model, DENTAL DIGEST, 43:574 (December) 1937.

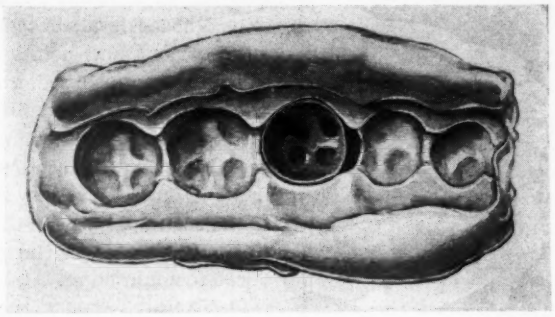


Fig. 4—Recovered wax-imprint embedded in impression.

lubricated with liquid albolene to facilitate subsequent recovery of the wax-imprint.

4. A stick of hard inlay wax is heated over an open flame; a sufficient portion of the softened end is pinched off and inserted into the prepared band. This wax-filled band is brought into position over the preparation and pressed to place, bringing the beveled margins about 0.5 mm. below the gingiva. With the band held steady between the thumb and index finger, the occlusal wax excess is condensed with any suitable hand instrument (Fig. 2). Under pressure, the wax-imprint may be safely chilled with room temperature water.[2] The lubricated band (or matrix) is first recovered, with the imprint still in position, so that any wax excess which may have been forced into undercut areas may be removed. The imprint may then be examined for detail registration at the gingiva.

5. The wax-imprint is carefully replaced on the prepared tooth and a colloid impression taken in order to establish its relationship with the contiguous structures. In order to insure the accurate recovery of the imprint in the impression, however, it is necessary to bury a flat metal staple in the occlusal wax excess in such a manner that the flat ends will extrude beyond the bulk (Fig. 3). In this way, the colloid will harden around and engage the free ends, and, on removal, will permit a withdrawal force to act simultaneously at two points. If two staples are used, a withdrawal force will act simultaneously at four points. Thus, an accurate undistorted recovery of the wax-imprint in the colloid impression is assured.[3]

6. The colloid material is prepared according to the manufacturer's directions. When used for wax impression purposes, however, the material is used in a somewhat heavier consistency, and cooler than is customary for full or partial prosthesis. A simple test for this is to allow enough time to elapse until flow of the material in the tray when inverted is hardly perceptible. An ordinary tray or a sectionally water-cooled tray may be used.

7. In any event, when the colloid is of the proper consistency and coolness, the tray is poised over the occlusal surface and gently pressed to placed in an axial direction.

8. When the colloid has hardened sufficiently and carefully removed, the recovered wax-imprint will be seen safely embedded in the impression (Fig. 4).

9. The exposed portion of the wax-imprint, which will become the internal surface of the proposed full crown, is cleaned of débris, saliva, and blood, if present. For this purpose, a solution of equal parts hydrogen dioxide and liquid green soap has been found satisfactory. It is important, however, subsequently to paint the internal surface with a preliminary mix of investment and to flow room temperature water over these impression areas to complete the cleansing. If any of the solution, which produces a mild froth, is left on the wax surfaces, the casting made therefrom will be a rough one.

10. Into this cleansed impression is poured a thick mix of any satisfactory highly refractory investment. The wax surfaces are painted first and the investment mix blown around and out several times until there is an adherent coating. For this purpose, a chip blower will be found more satisfactory than lung pressure. The bulk of the remaining mix is then poured into the wax-colloid impression.

11. When the investment has set sufficiently (thirty minutes), the model and colloid are removed intact from the tray; a bladed instrument similar to the cement spatula is used. This is carefully introduced in between the tray and colloid material. Out of the tray, the colloid is best removed by peeling off laterally. If the colloid is allowed to harden and shrink before separating, its removal in an occlusal direction might disturb the position of the wax on the investment model. That is why peeling off laterally is the safer of the two methods of separation.

[2]McGehee, W. H. O.: Text Book of Operative Dentistry, Philadelphia, P. Blakiston's Son & Co., Second Edition, 1936.

[3]Sturdevant, R. E.: A Simple Control for Practical Castings, J. A. D. A. 24:231 (February) 1937.

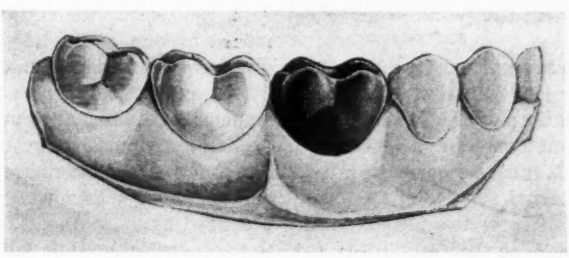


Fig. 5—Occlusal, buccal, and lingual contour and points of contact finished and checked on investment model.

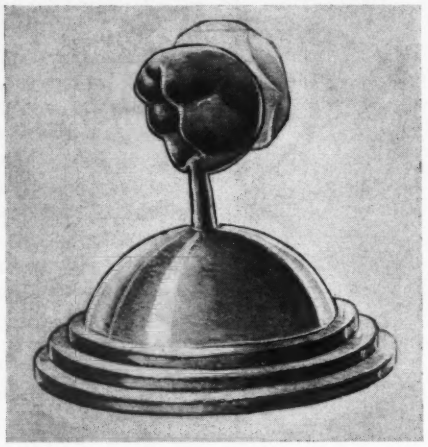


Fig. 6—Area around wax pattern sectioned off and a short thick sprue-former attached at a tangent. Molten gold will thus spin around with the least amount of investment interference.

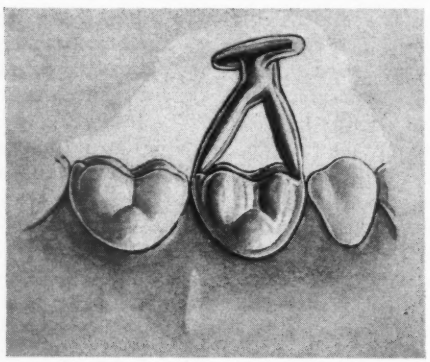


Fig. 7—Full crown casting with split sprue and button excess.

12. When this separation has been completed, an accurate investment model of the operative area will be seen, with the wax-imprint in accurate relationship to its contiguous structures. Generally, the metal staple will remain buried in the occlusal wax excess. It may easily be recovered by simply melting the point of attachment.

13. The external surface of the "partly invested" full crown pattern is contoured to form, not with sharp instruments but by means of heated instruments. It must be borne in mind that the internal surface of the proposed restoration is now preserved in set investment, so that any injury to the part of the model which is directly beneath the wax will be reproduced in the casting.

14. Inasmuch as inlay waxes are translucent in thin layers, if a reasonable amount of care is exercised in contouring with heated instruments, the model will be safe from injury. If too much has been removed, additional amounts may be melted onto the model.

15. Occlusal contour may be determined by one of two methods: The wax-investment model may be articulated against a previously obtained stone or low-fusing alloy model of the opposing articulation by means of a bite index; or functional contour may be obtained by first cutting down the prepared band to about the level of the preparation and puddling the excess occlusal wax. The patient is then instructed to register carefully the mandibular excursions in the inlay wax (Fig. 4). In this way the necessity for counter-occlusion with a bite index and an articulator is eliminated.

16. The occlusal, buccal, and lingual contour and points of contact are finished, smoothed, and checked on the investment model (Fig. 5). Immediately prior to spruing, the wax-model is passed lightly over an open flame to impart a velvety smoothness to the entire pattern. In this way, the finishing process in the gold is reduced to a minimum.

17. The area around the wax pattern is now sectioned. A short thick sprue-former (Fig. 6) is attached at a tangent, so that the molten gold will spin around with the least amount of investment interference. With regard to spruing a large pattern, as a full crown, it is sometimes advisable to use a split wax sprue. The theoretical reason for this procedure is to distribute the peripheral shrinkage as much as possible. This would appear to be equally as applicable to large complicated inlays as to full crowns. With the sprue-former attached, the model-pattern is allowed to soak in room-temperature water for about five minutes, and then reinvested with the same kind of investment used originally for the model.

18. Wax elimination and casting are done in the usual manner. Slow heat is first applied until all of the free water is eliminated, and high heat is applied for proper thermal expansion (Fig. 7).

Conclusions

By substituting hard inlay wax for compound or trulastic in the copper tube (or Ivory matrix) impression of the preparation, and then taking a colloid impression of the secured wax-imprint, the accuracy of the direct pattern technique is combined with the manipulative convenience of the indirect pattern technique.

There need be no fear of melting or otherwise distorting the wax with heated and plastic colloid, because waxes, soft, medium, and hard, become plastic between 104° F. and 122° F.; consequently, if the plastic colloid, when used for wax impression purposes has a temperature below these figures, there can be no possibility of distortion from heat.

584 *Valley Road*.

The Editor's Page

IT IS NOT GENERALLY known that the present Social Security Act includes provisions for health services. When the Act was passed in 1935 most of the people of the country were so concerned with discussing the old age and unemployment provisions of the Act that they neglected to notice Titles V and VI which provide for health services to be administered by the Children's Bureau and the United States Public Health Service respectively. The Children's Bureau is chiefly concerned with the health of mothers and children; whereas the Health Service concerns itself with general public health measures. It might be interesting to mention that for the fiscal year 1938 the federal funds allocated under the health service provisions of the Social Security Act amount to more than 18 million dollars. This is the federal grant-in-aid which presumably is matched by the states. That means that there is something like 36 million dollars being spent for health services under the present Social Security Act. Of this amount .4 of 1 per cent or $144,000 is allocated for dental care.[1] For 1939 the salaries of sixty-seven dentists and fifty-two dental hygienists in state health departments will be paid in part from Social Security funds.[2]

The philosophy that money spent for child health services has a long-time social security significance is certainly sound. If the health of the child and the mother can be protected and the child can grow to robust adulthood, he is a better economic risk to the nation. His years of productivity and his years as a consumer can be extended, and presumably, if the foundation for good health is well laid in childhood, dividends will be paid in later years. Nearly everyone agrees that child health programs are economically sound and biologically tenable. When, however, attempts to protect the health of adults under a compulsory health insurance program are made, another contributory tax will be exacted from the wage rolls of the country which presumably can be large enough to dislocate economic life. Suppose another 4 per cent tax were exacted from the employees and employers of the country as contributions to a health insurance system. This diversion of wage income from the immediate market for the purchase of goods and services to the purchase of a future security might precipitate the unhealthy condition of the nation that we are attempting to prevent. For example: Foregoing a pound of liver and a quart of milk today to purchase a vague kind of health protection for tomorrow may be precipitating a disease, the correction of which is far more costly than its prevention. If the families of wage-earners have to forego vitamins and minerals, and other essential food elements; if they are ill-clothed today because father must make a contribution to an insurance fund; if they are poorly housed because father can't pay rent on suitable quarters—then, diseases may be initiated now which can never be corrected later, regardless of how many dollars are available in an insurance fund.

So far as dental disease is concerned, we know that the only sound attack is through research on the cause of dental caries. The government with all its facilities can conduct this kind of program and integrate it with the rest of economic life. Awaiting the day when we know all the factors that cause tooth decay, we can insist that the only form of prevention is in early attention and early care of the child. Conversely, we know that the mutilated mouths of adult and later life can never be restored without the expenditure of amounts of money that would bankrupt any insurance system.

It is unlikely that the Wagner Bill for a National Health Program will pass the Congress, but it is not unlikely that changes in the Social Security Act will include other forms of coverage and benefits, probably with a great expansion of child and maternal health activities. We should begin to examine now how funds made available for the treatment of dental caries may be spent. Will children be treated in private practice under a capitation or fee system, or will they be cared for in clinics under the supervision of one of the federal agencies?

The American Dental Association has accepted the doctrine, "Dental Health for American Youth." The next step is to describe exactly the mechanisms under which American youth are to receive adequate dental health.

[1] Perrott, G. St. J. and Holland, Dorothy F.: Health As an Element in Social Security, Table 4, Annals, Am. Acad. Polit. Soc. Science, 202:134 (March) 1939.

[2] Lenroot, Katharine F.: Health Security for Mothers and Children, Annals Am. Acad. Polit. Soc. Science, 202:106 (March) 1939.

A Simple Technic Giving Superior Adaptation

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It is not at all difficult to give a new or rebased denture the kind of adaptation which, other things equal, practically insures correct fit and satisfaction of the patient.

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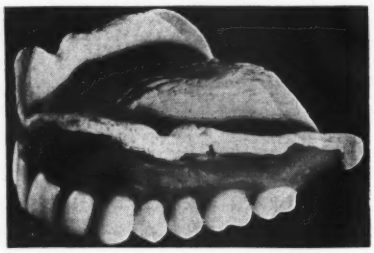

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Dr. KELLY'S Impression Paste

NOTES ON THE *Cuff*

February 28: Pyorrhea seems to be a disease that lends itself to weird terminology and weirder treatments. I have heard patients call it, "Pyrene" and I have heard dentists call it, "periodontoclasia." One is almost as bad as the other. Treatments for the disease vary from scraping and squirting to cutting and burning and to extracting and replacing. Today I was interrogated by a prospective patient concerning a new form of treatment— the "Green treatment." I had no way of knowing whether "Green" was the name of a man, of a drug, or of a town, but I took it from what she said that it was the color of some evil smelling concoction that a dentist had applied in her mouth. I had to say that I had never heard of the "Green treatment." This brings up the point that it is unwise to identify therapeutics with the names of products, or techniques with the names of men. The patient went elsewhere in search of her "Green treatment." I hope she doesn't have a green-zone-producing bug—*Streptococcus viridans*.

March 10: Thanks to W. B. Saunders and Company, we have just received the Eighteenth Edition of the excellent publication, Dorland's ILLUSTRATED MEDICAL DICTIONARY. A blue sheet is inserted which gives a list of new words. If you want to sit up nights

(*Continued on page* 154)

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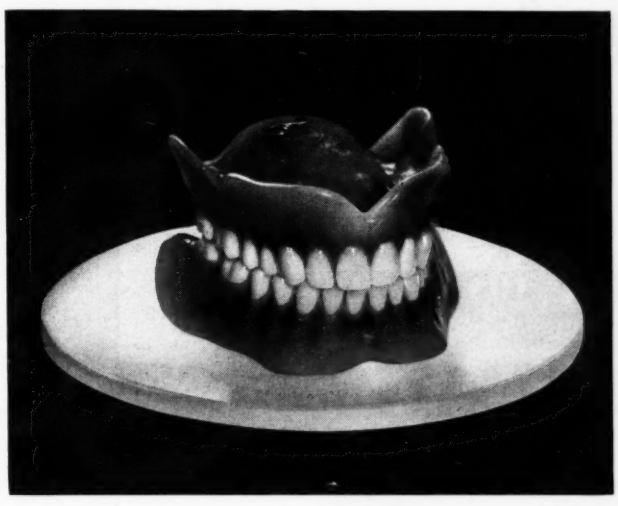

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XXX
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testing your ignorance, try to see how many of these words you can define. I would hate to give my score. Try these on your palate: aeropiesotherapy; arhigosis; athalposis; barbaralalia; bilharzioma; coproporphyrinuria; deltoiditis; epiallopregnanolone; epididymovasectomy; fasciolopsiasis; gargalesthesia; hierolisthesis; isalon; kwashiorkor; mephitibiosis; nocifensor; pareidolia; phlebopiezometry; plasmarrhexis; rumbatron; saucerization; scaevolism; steatomery; stomatolalia; thalassemia; titillomania; uraniscolalia; velonoskiascopy.

March 14; The spontaneous, round table type of discussion has taken hold of the country, largely because of the influence of the radio. *Harold J. Noyes,* the program chairman of one of the branches of the Chicago Dental Society, has effectively applied this discussion technique in his programs this year. The round table makes possible an informality and spontaneity that are impossible under more formal auspices. The old type of resounding debate with oratory and rebuttals is fortunately giving way to this more conversational type of presentation. At one discussion of this kind, two outstanding economists and I talked about the changing social order, from the points of view of the public, of medicine, and of dentistry.

The point of view of the public was well represented by *C. Rufus Rorem,* C.P.A., Ph.D., formerly of the Committee on the Costs of Medical Care and now with the American Hospital Association. *Mr. Rorem* said that 4 per cent of the national income which is now allocated for the maintenance of health is not enough. He stressed the fact that health insurance is a way of payment and not a method of practice; that the problem before the people is not one of destroying methods of practice or of lowering the costs of service, but rather it is a problem of raising sufficient money to care for the health needs of the people. The incredible sum spent for patent medicines in the United States was 360 million dollars a year, almost equal to the amount spent for dentistry. If the millions now spent for secret-formula drugs were divided into legitimate channels, it would mean that there would be almost $3.00 a year for the dental care of each person in the country and an increase in the in-

come of dentists by $5,000 a year a piece.

The point of view of medicine was represented by *Mr. A. M. Simons*, co-author of THE WAY OF HEALTH INSURANCE and now economist with the American Medical Association. *Mr. Simons* emphasized that the health program had far-reaching economic and political ramifications and that this one segment of human activity could not easily be separated from the whole.

For my part, I tried again to point out that now, this minute, today, in the United States, there are systems of socialized medicine in operation, under which teeth are extracted for fifty cents apiece under federal relief grants; under which dentists are paid at the rate of $1.51 an hour under WPA projects; under which dental allocations of eighty-one cents per person per year are made under Farm Security Administration plans. If these are the figures and the terms under which a far-reaching national health program with dental benefits is to be built, we must tell the people of the country that such a plan is a conspiracy against them, and means the destruction of dental practice. If these $1.51 operators and eighty-one cent a year services are to be the pattern upon which an extensive program is built, the end of scientific dentistry is at hand. Dentists with their extensive and expensive training, doing difficult, nervous work, with comparatively short productive years, will, under a low-level system, such as this, seek for a way of life and of living in other enterprises. I, for one, prefer to grow tomatoes.—*E. J. R.*

DENTAL MEETING

Dates

Pennsylvania State Dental Society, seventy-first annual meeting, Yorktowne Hotel, York, Pennsylvania, May 2-4.

•

Southwest Dental Congress, Eight States post graduate meeting, Oklahoma City, Oklahoma, April 24-28.

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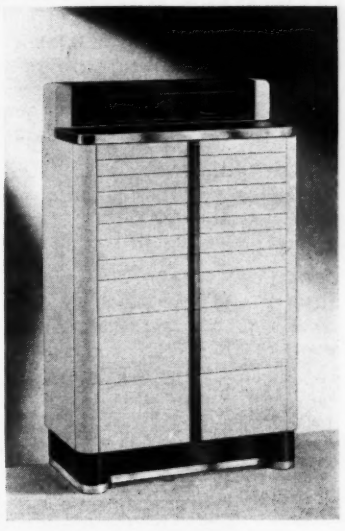

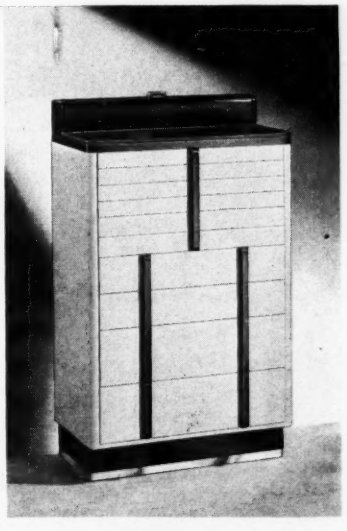

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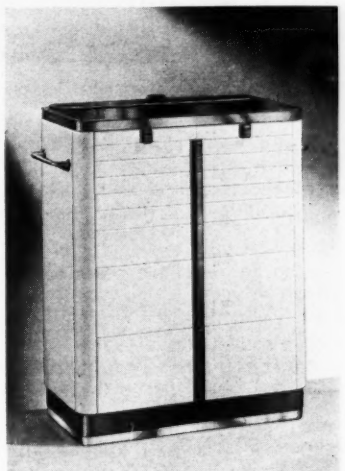

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THE RYAN EXAMINATION AND TREATMENT RECORD

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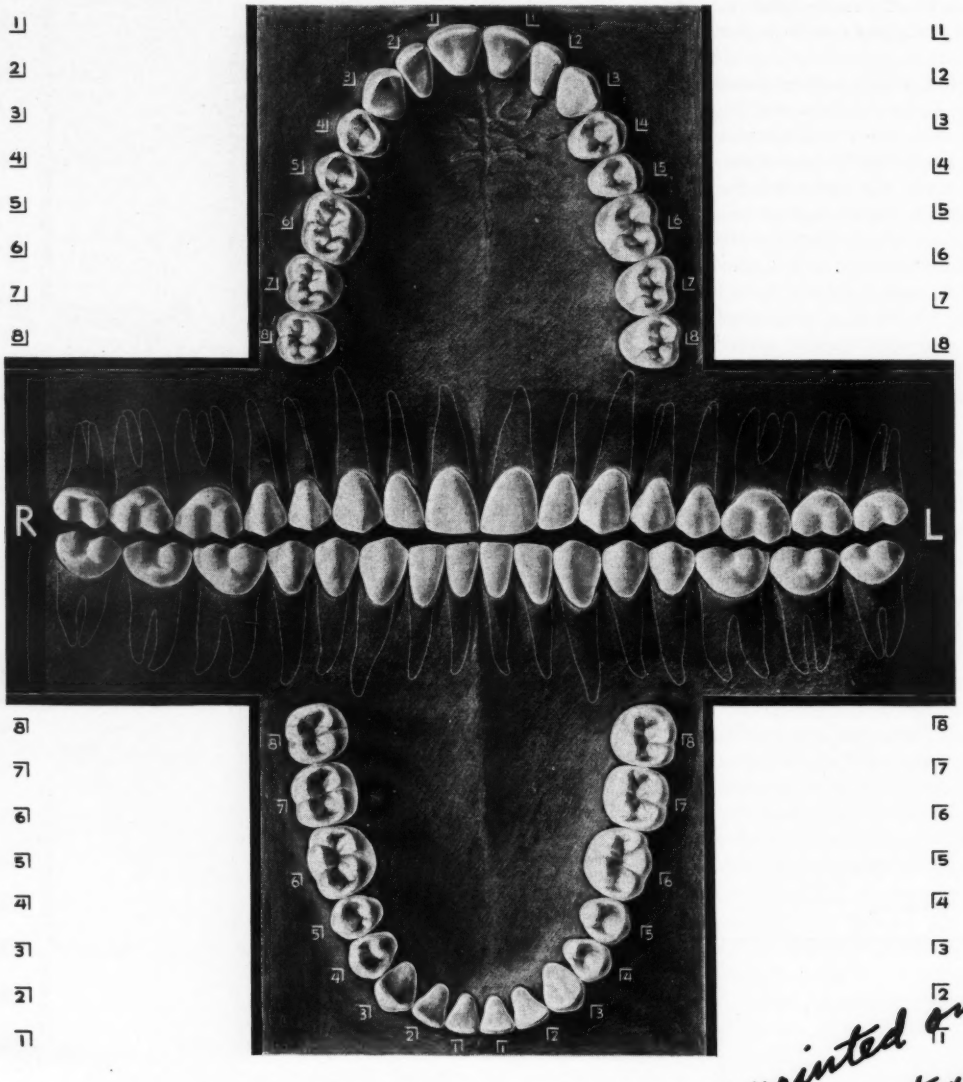
ESTIMATE_____ TERMS_____

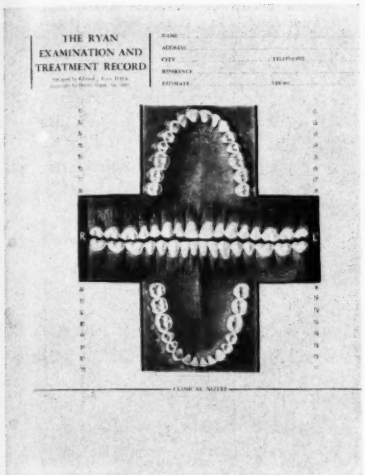


CLINICAL NOTES

Specimen of chart which is printed on white, durable paper of the right texture for crayons or colored pencils

Suggestions for the use of

The Ryan Examination and Treatment Record



TYPES OF PENCILS

Yellow	Mongol No. 867
Gray	Mongol No. 819
Red	Mongol No. 866
Blue	Mongol No. 865
Yellow	Castell No. 40
Gray	Castell No. 57

Mongol pencils are made by Eberhard Faber; Castell by A. W. Faber.

SUGGESTED SYMBOLS

Each dentist may develop his own system of symbols but the following specific markings have been found simple and adequate:

Soft Lead Pencil—(a) Porcelain fillings are indicated by a pencil outline.

(b) Porcelain jacket crowns and bridges are shown by cross-hatching with lead pencil across the corresponding tooth or teeth on the chart.

(c) Missing teeth are blocked out with a soft lead pencil.

(d) Abrasions are represented with soft lead pencil.

Blue Pencil—(a) Cavities are indicated with blue pencil.

(b) Advisable restorations are demonstrated with blue pencil.

Red Pencil—(a) A red line is used to indicate the presence of a root canal filling.

(b) A red outline shows the presence and position of an impacted tooth.

(c) Red pencil is used to represent pulp involvement.

(d) A red "X" is made across a tooth to indicate that its extraction has been advised.

(e) Pyorrhea pockets are represented in red along the crest of the alveolar ridge (and a notation is made at the bottom of the chart if extensive gingivitis is present).

1. The Ryan Examination and Treatment Record may be had in pads of fifty charts each. These pads fit conveniently in a standard 9½ by 11½ inch loose-leaf notebook which may be purchased at a five-and-ten cent or variety store.

2. Alphabetical dividers may be made by using a ten cent package of plain white paper of the same size as the charts with holes punched at the same distances, and a fifteen cent box of alphabetical index tabs. The holes are reinforced.

3. It is a good plan to keep a blank sheet of paper between the charts to prevent possible smearing of crayon or pencil markings; but this is not essential.

4. A fresh pad of charts may be kept ready for use in back of the notebook of active records.

5. The various types of restorations and their location in a particular mouth are shown with the use of polychrome pencils—gray, for amalgam; deep yellow, for gold. White pencil does not show up very well; consequently, porcelain may be indicated with soft lead pencil outlines or cross-hatching.

6. Spaces provided beside the quadrants with numbers corresponding to the teeth permit special notations concerning each tooth. As treatment progresses the blue markings indicating needed dentistry are erased, and the nature, location, and date of placement of each new restoration are recorded. Additional clinical notations are made if necessary in the space provided for that purpose below the chart itself.

7. It is essential to be consistent in any system of symbols or markings developed. To insure consistency, it is well to have a key page in the front of the notebook.

8. The exact record of conditions found in the average patient's mouth at the original examination can be completed in fifteen or twenty minutes, and the time it takes to keep a chart up to date is negligible.

9. When a chart is completed the necessary data (name, address, telephone, reference, estimate, and terms) are typewritten in the spaces provided at the top of the record. The date of the original examination is also recorded in order that the treatment dates (as shown in the quadrants at the sides of the chart) will be recognized as subsequent to the date of the original examination.

10. Provision is made on the back of the chart for bookkeeping records. This is merely for the convenience of dentists who wish to keep all records together, but may be ignored by dentists who have a satisfactory bookkeeping system which they need not and do not wish to discard. The Ryan Examination and Treatment Record may be employed as an additional or supplementary record to any established method of record-keeping dentists may have.

11. Although the Ryan Examination and Treatment Record was designed for the dentist's own convenience in his practice, the charts have been found to have a definite informative value in explaining conditions to patients. The charts are also particularly helpful in reporting dental conditions of patients to cooperating physicians.

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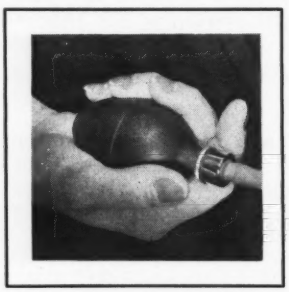

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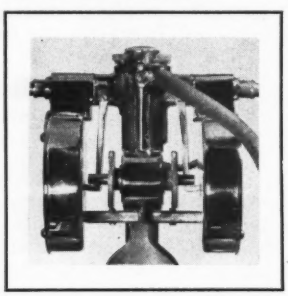

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Southwest Dental Assistants Congress, eight states meeting, Oklahoma City, Oklahoma, April 24-28.

•

Tennessee State Dental Association, annual meeting, Hotel Hermitage, Nashville, May 8-11.

•

Dental Society of the State of New York, seventy-first annual meeting, Hotel Pennsylvania, New York City, May 9-12.

•

Georgia State Dental Association, seventy-first annual meeting, Partridge Inn, Augusta, Georgia, May 15-17.

•

Indiana State Dental Association, annual meeting, Claypool Hotel, Indianapolis, May 15-17.

Ontario Dental Association, seventy-second annual meeting, Royal York Hotel, Toronto, June 5-7.

•

French Speaking Dentists of North America, fifth annual meeting, Mount Royal Hotel, Montreal, Canada, June 8-10.

•

Mississippi Dental Association, annual meeting, Markham Hotel, Gulfport, June 12-14.

•

American Dental Society of Europe, annual meeting. Lausanne, Switzerland, August 7-9.

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New Jersey State Board of Dental Examiners, annual meeting, June 26-30. Applications must be filed prior to March 15. For information write to Walter A. Wilson, D.D.S., 148 West State Street, Trenton, New Jersey.

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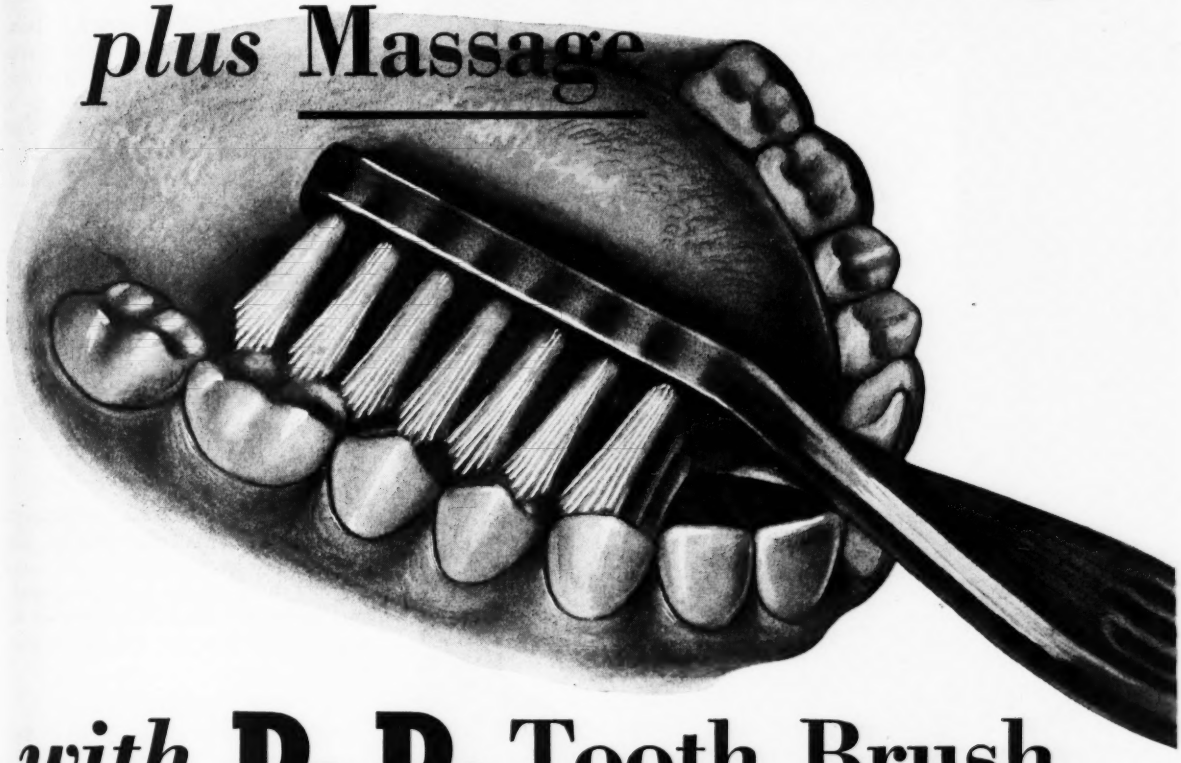

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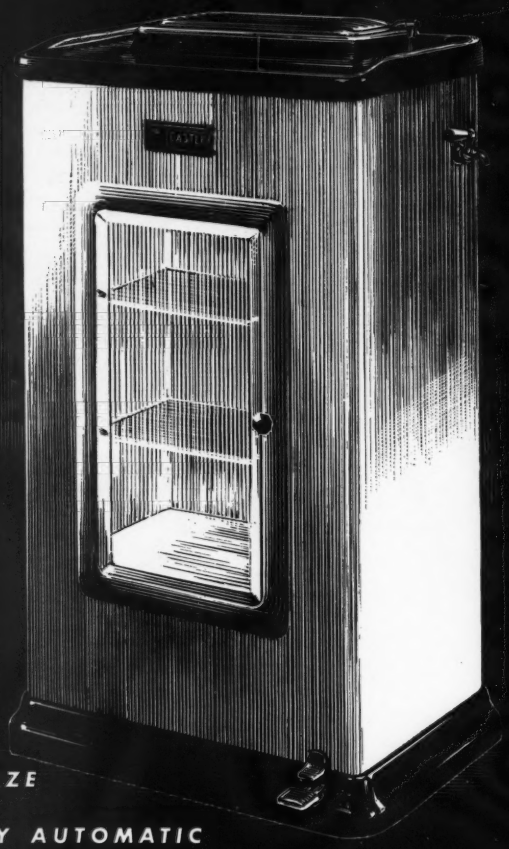

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Florida State Board of Dental Examiners, annual examination, Seminole Hotel, Jacksonville, commencing June 26. Preliminary applications must be filed sixty days prior to date of examination. For information write to H. B. Pattishall, D.D.S., 351 St. James Building, Jacksonville.

•

North Dakota State Board of Dental Examiners, regular meeting, Gardner Hotel, Fargo, July 10-13. Applications with necessary fee must be in the hands of the secretary at least ten days prior to date of examination. L. I. Gilbert, D.D.S., 401 Black Building, Fargo, North Dakota.

•

South Dakota State Board of Dental Examiners, regular meeting, Carpenter Hotel, Sioux Falls, June 26-29. Applications must be in the hands of the Secretary ten days prior to examination. For information wire to C. H. Boyden, D.D.S., Mitchell, South Dakota.

•

Maine Board of Dental Examiners, regular meeting, State House, Augusta, June 28-30. Applications must be filed 10 days prior to date of meeting. For information write to Carl W. Maxfield, D.D.S., 31 Central Street, Bangor, Maine.

•

California Board of Dental Examiners, regular meeting, Physicians and Surgeons College of Dentistry, University of California, San Francisco, May 22; in Los Angeles, Room 804, City Hall, on June 19. All applications must be filed 20 days prior to meeting. For information write to Kenneth I. Nesbitt, D.D.S., 515 Van Ness Avenue, San Francisco.

•

Ohio State Board of Dental Examiners, regular meeting, College of Dentistry, Ohio State University, Columbus, June 26. Applications must be filed 10 days prior to examination. For information write to Morton H. Jones, D.D.S., 1553½ North Fourth Street, Columbus, Ohio.

•

Alabama State Board of Dental Examiners, regular meeting, Birmingham, June 19. Applications must be filed two weeks prior to examination. For information write to James A. Blue, D.D.S., 1016 Comer Building, Birmingham, Alabama.

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•

American Full Denture Society, annual meeting, Roof Room, Hotel Pfister, Milwaukee, Wisconsin, July 15-16.

•

American Dental Assistants Association, fifteenth annual convention, Astor Hotel, Milwaukee, July 17-21.

•

National Dental Association, annual convention, College of Dentistry, Columbia University, New York City, August 14-18. For information write to J. A. Jackson, D.D.S., Charlottesville, Virginia.

•

Fall Clinic of Montreal Dental Club, fifteenth annual meeting, Mount Royal Hotel, Montreal, Canada, September 27-29.

•

STATE BOARD EXAMINATIONS

Mississippi State Board of Dental Examiners, regular meeting, new State Capitol Building, Jackson, June 20. Applications must be in the hands of the Secretary on or before June 3. For information write to A. B. Kelly, D.D.S., Yazoo City, Mississippi.

•

Connecticut Dental Commission, regular meeting, June 10-24, Hartford. Applications should be in the hands of the Recorder ten days prior to examination. For information write to A. J. Cutting, D.D.S., Southington, Connecticut.

•

New Mexico State Board of Dental Examiners, regular meeting, Albuquerque, June 19-22. For information write to J. J. Clarke, D.D.S., Artesia, New Mexico.